## (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 28 July 2005 (28.07.2005)

**PCT** 

## (10) International Publication Number WO 2005/069525 A1

(51) International Patent Classification<sup>7</sup>: H03M 13/09, G06K 7/00

H04L 1/00,

(21) International Application Number:

PCT/GB2005/000110

- (22) International Filing Date: 14 January 2005 (14.01.2005)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0400968.4

16 January 2004 (16.01.2004) GE

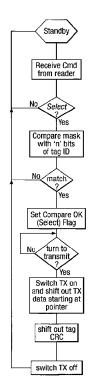
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: A METHOD AND SYSTEM FOR CALCULATING AND VERIFYING THE INTEGRITY OF DATA IN A DATA TRANSMISSION SYSTEM



is the command a 'select' command containing a mask

The tag clocks its TX shift register together with the incoming mask data and performs a bit by bit comparison of the tag ID and the mask for 'n' bits as determined by the mask length. Simulteneously the ID is shifted through the tag CRC generator

If the mask and in bits of the tag ID match then the tag sets its Selected flag and vails to rits turn to transmit as determined by the system arbitration elgorithm. A pointer indicates the position of the next bit in the tag memory following the last bit compared. The CRC generator retains its current

When it is the tag's turn to transmit it starts its transmission from the bit position indicated by the pointer. The ID is simultaneously shifted through the CRC generator, the CRC generator continues from its last position without reseiting.

When the last ID bit is shifted out of tag memory the tag switches to shifting out the CRC bits. When the last CRC bit has been shifted out the TX switches of completing the reply cycle. The CRC is calculated over the complete tag ID stored in msmory even though only a portion of the ID was actually

The reader calculates the first portion of the CRC based on the mask value transmitted to the tag i the select command.

As the reader receives the tag transmission it continues from where it left off, calculating the CRC on the incoming message

Once the reader has received the the last message bit from the tag it compares the CRC transmitted by the lag with the CRC generated in the reader from the mask value transmitted by it and the data stream received from the tag.

(57) Abstract: A method is described of calculating and verifying the integrity of data in a data communication system. The system typically comprises a base station and one or more remote stations, such as in an RFID system. The method includes transmitting a select instruction from the base station to said one or more remote stations, the select instruction containing a data field which matches a portion of an identity or other data field in one or more of the remote stations; transmitting from a selected remote station or stations a truncated reply containing identity data or other data of the remote station but omitting the portion transmitted by the base station; calculating in the base station a check sum or CRC from the data field originally sent and the truncated reply data received and comparing the calculated check sum or CRC with the check sum or CRC sent by the remote station. A system and transponder is also described.

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ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG). For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## Published:

with international search report